

- 10 -

selected from residues having a maximum chain length in the ranges of up to R-2 carbons or from R+2 carbons, and conveniently in the ranges of from 1 to 6 and 13 to 22 carbon atoms. Particularly desirable short chain alkyl R' residues include methyl, ethyl, and propyl. The alkyl groups within R' can optionally be fluorinated or substituted by an aryl group such as those described hereinafter or by a cycloaliphatic group such as those described hereinafter or by an amine or amide group. The substituted aliphatic residue R' desirably contains not more than 31 and particularly not more than 22 carbon atoms.

When R' represents or contains an aromatic hydrocarbon residue, particularly an aryl residue, suitable examples comprise phenyl, naphthyl and biphenyl residues. The aryl group can comprise 1 or a plurality of nuclei, which may be fused or not fused. The aryl nucleus or nuclei therein can be substituted, for example by an alkyl or alkoxy group containing up to 20 carbon atoms or a halo group such as fluoro or a nitro group or an alkyl ester, alkylamine or alkylamido group. The substituted aromatic residue R' desirably contains not more than 26 carbon atoms.

When R' represents a cycloaliphatic hydrocarbon residue, suitable examples include cyclohexane and cyclooctane. The cycloaliphatic nuclei can be substituted for example by an alkyl or alkoxy group containing up to 20 carbon atoms or by an aryl group such as described above.

- 11 -

R' can comprise an alkyl, aryl, cycloalkyl, alkaryl, aralkyl or cycloalkylaryl residue.

The acylated cellobiose materials according to the present invention can adopt either of the α or β anomeric forms or mixtures thereof. In a number of highly desirable embodiments, for example those in which R' constitutes a saturated hydrocarbon residue, such as cyclohexyl, or linear C4 to C10 alkyl which differs from the R residue, the CHME comprises at least 60 molar% in the β anomeric form, particularly at least 80 molar%, and some especially preferred CHMEs are at least 90 molar% in the β anomeric form. In other desirable embodiments, for example those in which R' constitutes an unsaturated hydrocarbon residue, such as benzoyl or 4-Biphenoyl, the CHME preferably is at least 90 molar% in the β anomeric form.

Preferably, the acylated cellobiose is acylated by a total of greater than six and in many instances greater than seven acyl substituents, R-CO- + R'-CO-, on average, and especially by at least 95 molar % of total acylation. In practice, we have found that acylation often occurs preferentially at cellobiose carbons other than at its anomeric carbon atom, so that the former carbons tend towards being fully acylated, commonly at least six of the seven X locations representing R-CO-, and in many instances all or substantially all seven locations representing R-CO-, whilst anomeric carbon may be, and commonly is, acylated to a lesser proportion.

It is desirable that the anomeric carbon is acylated to at least 50%, preferably at least 60% and more preferably is at least 75% acylated, and most desirably in conjunction with X representing at or substantially 100% R-CO- (normally at least 6 out of seven locations, and preferably greater than 97%). It is particularly desirable to employ CHMEs in which there is not only a high extent of acylation at the anomeric carbon, but also simultaneously a high molar proportion of the ester is in the β anomeric form, each of which feature has been described more precisely hereinbefore.

An especially suitable sub-set of CHMEs comprises esters in which i) each R substituent represents a linear octyl residue, ii) the anomeric position is acylated to a high proportion and preferably at least 75 molar%, and iii) a high proportion of and preferably at least 80 molar% of the CHME is in the β anomeric form.

When contemplating the use of the cellobiose esters in general and the invention esters in particular for preparing translucent gels of water-immiscible fluids, such as silicone fluids or other water-immiscible fluids mentioned herein, it is desirable to select those materials which have a relatively high fibre dissolution temperature (FDT). Advantageously, many of the invention esters herein exhibit an FDT of at least 48°C and especially advantageous invention esters are those having an FDT of at least 51°C, because they tend to produce gels having greater storage stability.